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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,516	12/22/2003	Todd Coons	EH- 11065	8176

30188 7590 03/25/2005

PRATT & WHITNEY  
400 MAIN STREET  
MAIL STOP: 132-13  
EAST HARTFORD, CT 06108

EXAMINER
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NGUYEN, NINH H

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/743,516

Applicant(s)

COONS ET AL. 

Examiner

Ninh H. Nguyen

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Keith et al. (6,382,908).

Keith discloses a vane cluster comprising: an inner platform 16 (Figs. 1-3) including an inner endwall surface and an inboard cavity (Fig.2); an outer platform 14 including an outer endwall surface and an outer cavity wherein said outer platform is spaced radially outboard of said inner platform and said outer endwall surface faces said inner endwall surface; at least two airfoils spanning between said inner and outer endwall surfaces (Fig. 1), each including, a concave surface, a convex surface, a leading edge and a trailing edge located axially rearward of said leading edge, wherein said concave and convex surfaces of adjacent airfoils face each other; a duct bounded by said adjacent concave and convex surfaces and said inner and outer endwall surfaces; at least one hole (Fig. 1) including an inlet cross sectional area and an outlet cross sectional area; and wherein said at least one hole outlet cross sectional area is located on said duct boundary;

wherein the holes on the leading edges of the airfoils are not visible when viewed from an external location axially rearward of the trailing edges; and

Art Unit: 3745

wherein the last row of holes on the convex side of the airfoils are not visible when viewed from an external location axially forward of the leading edge (the airfoils are curved).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keith et al. as applied to claims 1-4 above in view of Adamski et al. (5,637,239).

Keith discloses all the limitations including at least one hole in the leading edges has an inlet cross sectional area, an outlet cross sectional area, a bore extending between the inlet and the outlet areas wherein the bore has a central, longitudinal axis; and wherein the at least one outlet cross sectional area is located on the duct boundary.

However, Keith does not disclose the at least one inlet cross sectional area is not visible when viewed along the longitudinal axis from an external location as claimed.

Adamski teaches advanced shaped cooling holes on turbine airfoils wherein the holes have curved shaped formed by electrodischarge machining to improve cooling of the airfoils (col. 1, lines 30-50).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made, to make the vane cluster of Keith with the curve shaped cooling holes of Adamski for the purpose of improving cooling of the airfoils. Due to the curve shaped cooling

Art Unit: 3745

holes, the inlet cross sectional area of a cooling hole is not visible when viewed along the respective longitudinal axis from an external location.

### ***Prior Art***

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

Halsey (5,871,333) and Beeck et al. (6,644,920) are cited to show airfoils having cooling holes.

### ***Conclusion***

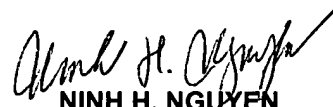
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Ninh Nguyen whose telephone number is (571) 272-4823. The examiner can be normally reached on Monday-Friday from 7:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look, can be reached at (571) 272-4820. The fax number for this group is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 3745

applications is available through Private PAIR only. For more information about the PAIR system, please go to <http://pair-direct.uspto.gov> or contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).

  
NINH H. NGUYEN  
PRIMARY EXAMINER

Nhn  
March 17, 2005